

one from a male animal and the other from a female, the one weighed 10 lbs., the other 12 lbs.,—the small lower jaw of one weighing $4\frac{1}{2}$ lbs. Of the skulls of two Horses weighed, one was $10\frac{1}{2}$ lbs., and the other 11 lbs.

But there is another remarkable peculiarity in the skull of the Camel, that has not been, I think, sufficiently noticed, viz. the Gorilla-like form of the upper and back part; indeed I can find no animal that has so great a resemblance to the Gorilla in this particular as the Camel. The large size, too, of what are called the true canine teeth, which in some male Camels exceed the length of 2 inches (out of the gum), is another curious affinity; and the early obliteration of the cranial sutures may be mentioned as a third, although I believe, from the examination of a great many skulls of the Gorilla, that they are earlier effaced in this animal; but the rough and unequal condition of the cranial surface for the firmer attachment of muscle is far greater in the Gorilla.

In the Camel the occipital, the sharp parietal, and the triangular frontal ridges are all present, as in the Gorilla; but the occipital ridge is often deeper than that in the anthropoid Ape.

Another deviation in the *Camelidæ* is worthy of notice: they have only twelve ribs, whilst the great majority of ruminants have thirteen; the Giraffe, as is well known, has fourteen. The number of lumbar vertebræ in the Camels is seven, as in the Oxen. Under the microscope there is a marked difference in the hair of the Bactrian Camel and that of one-humped Camel: the former is of a more woolly character. As is well known, the blood-corpuscles of the *Camelidæ* are of an elliptical form; but in the animal I have lately dissected, from the great amount of pulmonary disorganization, the white corpuscles of the blood were very abundant, and these were all round—a fact, I think, of some physiological importance.

2. ON THE FEATHERS OF DINORNIS ROBUSTUS, OWEN. BY W. S. DALLAS, F.L.S., KEEPER OF YORK MUSEUM.

The acquisition by the Yorkshire Philosophical Society of a specimen of *Dinornis robustus*, Owen, in so perfect a state of preservation that it retains even portions of the muscular and integumentary systems, enables me to describe at least a part of the structure of the feathery covering of this remarkable bird, and thus to throw some further light upon its affinities among birds with which we are acquainted in the living state. The general condition of the skeleton was described by Mr. Allis in a paper read before the Linnean Society in June last; and Professor Owen has since made use of one or two portions of it for the completion of his description of the species, in a paper communicated to this Society; but the fact of the occurrence of the feathers, however imperfect, of a bird which, as far as our information goes, has long been extinct, seems to call for some special notice.

At first sight, indeed, it would seem that the fresh condition of many parts of this skeleton, and the preservation of traces of the soft parts, might warrant us in supposing that many years have not elapsed since the bird to which it belonged wandered over the hills of Otago; but all possibility of drawing from these circumstances any conclusions as to the period of its death is set aside by the fact that other parts of the skeleton are in a state of decay which would apparently require a free exposure to the weather for many years for its production.

The portion of skin which bears the remains of feathers covered the greater part of the flat, rhombic region of the pelvis immediately above the commencement of the tail, and extended, on the left side, beyond the ridge bounding this part of the pelvis, and for some distance down the slope of its side, where it has beneath it the aponeurotic portion of some of the great muscles of the thigh. The feather-bearing portion forms a sort of broad, irregular, transverse band across this region of the pelvis, encroached upon anteriorly by a wide semicircular notch, and posteriorly, a little to the right of the centre, by an irregular worn space exhibiting numerous perforations, indicating the former positions of feathers which have disappeared. The skin itself is rather thick and coarse. The remains of feathers occur only on that part of the skin which covered the flat back of the pelvis, in which their insertions give rise to strongly marked papillæ. The skin on the sloping left side of the pelvis bears no feathers, and presents no traces of their insertion. It appears, however, to have lost some of its outer layers, and certainly does not furnish evidence sufficient to prove the existence of a featherless space at this part, which would be opposed to Nitzsch's description of the pterylography of the *Struthionidæ*.

The feathers are all very imperfect, consisting only of the basal portions of the shaft and accessory shaft, with here and there some traces of the barbs. The latter occur most abundantly towards the left side, and especially in the feathers situated upon the left ridge, from which the specimen here figured (fig. 1) was taken. The shafts are always evidently imperfect; the longest fragment existing in the skin is only about 2 inches in length. The stem tapers gradually, the quill being the widest part and about $\frac{1}{4}$ th of an inch in diameter. The quill is inserted about $\frac{3}{16}$ ths of an inch into the skin, and the webs appear generally to have commenced about $\frac{1}{2}$ th of an inch from the junction of the quill with the shaft. From these data it is of course impossible to form any opinion as to the original length of the feathers.

The accessory shafts are considerably smaller than the main shafts, but still of sufficient size to constitute an important portion of the plumage. The longest accessory shaft that I have been able to find measures $1\frac{1}{2}$ inch in length, and is imperfect; there is little doubt that the accessory shafts were both shorter and more slender than the true feathers.

The shaft is somewhat convex above, and marked with a fine longitudinal furrow beneath. It is of a brown colour beneath, but pale

horn-colour above, probably from exposure to external influences. The accessory shaft is of a pale horn-colour, and appears to be nearly cylindrical.

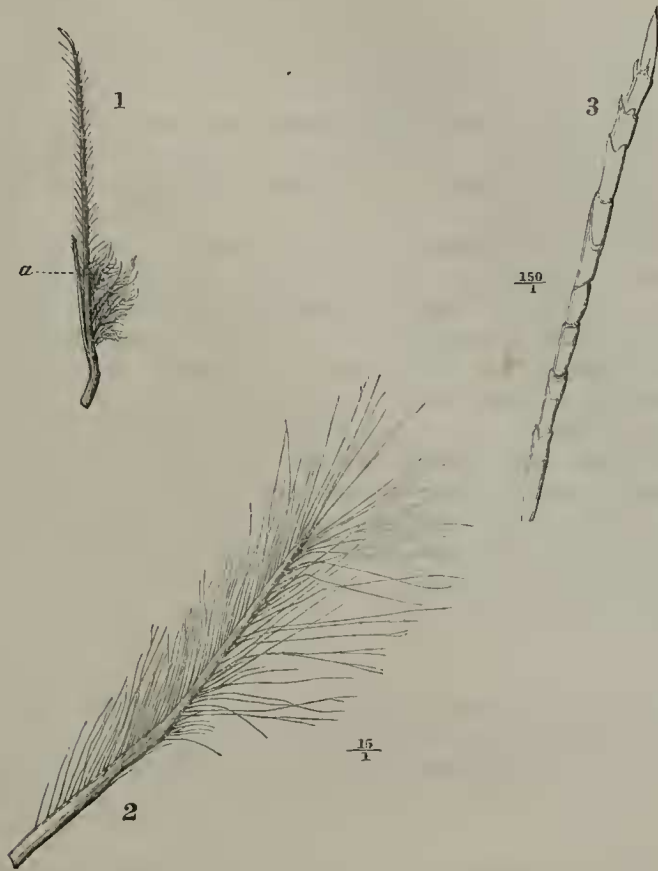


Fig. 1. The basal portion of a feather detached from the skin, of the natural size :
a. The accessory shaft.
 2. Part of a barb with the barbules ; magnified 15 diameters.
 3. Apical portion of a barbule ; magnified 150 diameters.

The structure of the web is somewhat different from that which occurs in the Emu and the Cassowary. Towards the base of the shaft the barbs spring in groups of four or five together from nearly the same spot, and thus this part of the web assumes a tufted aspect. As we advance towards the apex this arrangement speedily ceases ; the number of barbs springing from the shaft gradually diminishes, until each side bears only a single series of these appendages. The barbs consist of slender, flattened fibres, bearing long, silky, and very delicate barbules, without any trace of barbicels, but presenting a distinctly beaded appearance when examined by a simple lens. Under

the microscope, with a moderate power, this beaded aspect is lost, and the barbule appears merely divided by faint transverse partitions into a series of cells, some of which, towards the apex, exhibit small tooth-like projections representing the rudiments of barbicels (fig. 3). All the barbs remaining on the feathers appear to be imperfect.

The barbs of the accessory plume are of the same general structure as those on the main shaft, but they appear to form a single series on each side from the base.

The barbs nearest the base of the feather, both in the main web and the accessory plume, are destitute of barbules for some distance from their base; but this distance gradually decreases until the barb is furnished with barbules throughout its whole length.

It is evidently impossible to determine from these mere fragments of feathers what was the precise structure of those organs when perfect; we cannot even decide whether the basal barbs possessed the hair-like tips characteristic of those of the Emu and Cassowary, and still less whether the apical portion of the feather supported simple barbs such as occupy that position in those birds. The only fact of importance, indeed, that I can hope to make known by this paper is that the *Dinornithes* undoubtedly possessed a large accessory plume, thus adding another proof of their relationship to the green-egged Emus and Cassowaries existing in the Australian region, and of their difference from the white-egged group of Struthiones represented in Africa and South America.

3. DIAGNOSES OF NEW SPECIES AND A NEW GENUS OF MOLLUSKS FROM THE REIGEN MAZATLAN COLLECTION: WITH AN ACCOUNT OF ADDITIONAL SPECIMENS PRESENTED TO THE BRITISH MUSEUM. BY PHILIP P. CARPENTER, B.A., PH.D.

After the publication of the British Museum Mazatlan Catalogue, the backs of several fresh *Spondylus*-valves were examined by Mr. R. D. Darbishire and myself. Among the specimens were several which were deemed worthy of being added to the national collection; they were deposited there, with a MS. appendix to the Catalogue, in 1858. As it is not judged necessary to print this separately, I have (with the permission of Dr. Gray) transcribed what should be placed on record, in hopes that it may not be judged out of place in the 'Proceedings.' Those who use the Mazatlan Catalogue are requested to observe not only the corrections in the Appendix, pp. 547-552, but also those made in the Review of Professor C. B. Adams's Panama Catalogue, P. Z. S. 1863, p. 339; and in the British Association Reports, 1863, pp. 543 *et seq.* The numbers, both of species and of tablets, are continued from the Mazatlan Catalogue, and correspond with those in the Report. The student of the Gulf fauna should also consult the account of Mr. Xantus's